

Cost to retrofit one Issaquah class vessel to LNG	
Design	\$ 300,000
Construction	\$ 6,400,000
CE	\$ 200,000
OFE	\$ 6,000,000
Contingency	\$ 1,100,000
<b>Total</b>	<b>\$ 14,000,000</b>

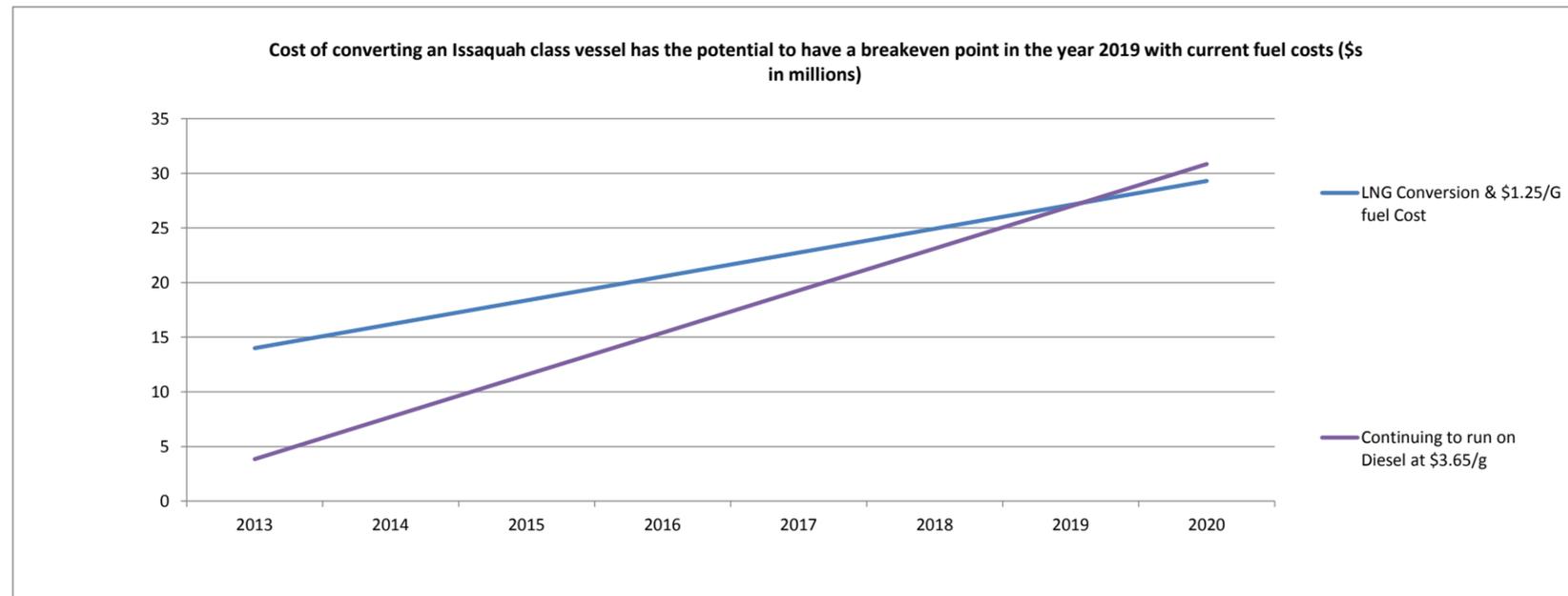
	Fuel Costs	gallons per year
\$3.65 Diesel/Gallon	\$ 3,854,400	1,056,000
\$1.25 LNG/Per Gallon	\$ 2,184,600	1,747,680
	<b>\$ 1,669,800</b>	

**\$14M divided by \$1.6M = years to pay off investment 8.4**

Converting an Issaquah class vessel at a cost of \$14M has the potential to save \$1.6M in fuel costs per year which would have break even point of 8.4 years. This could provide a 25% reduction in CO2 emissions by using in LNG, and the elimination of sulphur oxides SOx, 95% reduction in nitrous oxides NOx, and the elimination of particulate emissions on the gallons of diesel that we would be replacing with LNG. Similar savings can be achieved on other vessels in the class.

	2013	2014	2015	2016	2017	2018	2019	2020	2021
LNG Conversion & \$1.25/G fuel Cost	\$ 14.0	\$ 16.2	\$ 18.4	\$ 20.6	\$ 22.7	\$ 24.9	\$ 27.1	\$ 29.3	\$ 31.5
Continuing to run on Diesel at \$3.65/g	\$ 3.9	\$ 7.7	\$ 11.6	\$ 15.4	\$ 19.3	\$ 23.1	\$ 27.0	\$ 30.8	\$ 34.7

	gallons per year	Fuel \$ in Millions per year
\$3.65 Diesel/Gallon	\$ 3,854,400	1,056,000
\$1.25 LNG/Per Gallon	\$ 2,184,600	1,747,680



Assumptions:  
 Fuel consumption based on the Bremerton route  
 Current Fuel prices diesel \$3.85  
 Current Fuel prices LNG \$1.25  
 \$14M estimated cost for retrofit